

I. Amendments to the Claims

Please amend the claims as follows with the following version of the claims in accordance with revised 37 CFR § 1.121.

1. (Amended) A method for managing bandwidth within a distributed data processing system, the method comprising:

establishing a bandwidth history comprising bandwidth usage data associated with multiple entities within the distributed data processing system, wherein an entity within the distributed data processing system is ~~selected from a group comprising a user or, an application; and~~
~~, and/or an endpoint; and~~

in response to a requested action within the distributed data processing system, predicting bandwidth usage by the requested action.

2. (Amended) The method of claim 1 further comprising:

selecting, by an administrative user, a user to be monitored for bandwidth usage;

generating a packet filter object containing a packet filtering parameter that identifies the selected user;

in response to a request by the administrative user, dynamically deploying packet snoopers in association with the packet filter object to a set of devices throughout the distributed data processing system;

executing the dynamically deployed packet snoopers at the set of devices to monitor bandwidth usage by the selected user with respect to a given device or a given subnet; and

receiving bandwidth usage data from the dynamically deployed packet snoopers.

~~receiving the requested action, wherein the requested action is a target resource within the distributed data processing system, and wherein completion of the requested action depends upon operations of a set of resources along a logical route through the distributed data processing system.~~

3. (Amended) The method of claim 1 further comprising:
selecting, by an administrative user, an application to be
monitored for bandwidth usage;

5 generating a packet filter object containing a packet
filtering parameter that identifies the selected application;
in response to a request by the administrative user,
dynamically deploying packet snoop objects in association with
the packet filter object to a set of devices throughout the
10 distributed data processing system;

executing the dynamically deployed packet snoop objects at
the set of devices to monitor bandwidth usage by the selected
application with respect to a given device or a given subnet; and
receiving bandwidth usage data from the dynamically deployed
15 packet snoop objects.

~~2 wherein the requested action is received from a requesting user~~
~~or a requesting application.~~

4. (Amended) The method of claim ~~3~~ 1 further comprising:
20 snooping network packets from multiple sources within the
distributed data processing system;

filtering the network packets against multiple filter
parameters, wherein a filter parameter comprises a user
identifier, an application identifier, and/or an endpoint
25 identifier; and

reporting packet snoop data to be associated with the
requesting entity;

computing bandwidth usage data from the packet snoop data;
and

30 storing bandwidth usage data as the bandwidth history.

5. (Amended) The method of claim 2 ~~4~~ further comprising:
inserting a packet filtering parameter in the packet filter
object that specifies a packet type to be snooped.

~~computing bandwidth usage data from the packet snoop data.~~

6. (Amended) The method of claim 2 ~~5~~ further comprising:
inserting a packet filtering parameter in the packet filter
object that specifies a packet size to be snooped.

~~storing bandwidth usage data as the bandwidth history.~~

7. (Amended) The method of claim 1 ~~3~~ further comprising:
deriving a set of logical routes from a network topology
mapping, wherein each logical route is a series of endpoints that
comprise an endpoint-to-endpoint route for completing the
requested action;

in response to a request by the administrative user,
dynamically deploying packet snoopers objects in association with
a packet filter object along the set of logical routes throughout
the distributed data processing system, wherein the packet filter
object specifies packet types or packet sizes to be snooped;

executing the dynamically deployed packet snoopers objects at
devices along the set of logical routes to monitor bandwidth
usage; and

receiving bandwidth usage data from the dynamically deployed
packet snoopers objects.

8. (Amended) The method of claim 3 ~~1~~ further comprising:
inserting a packet filtering parameter in the packet filter
object that specifies a packet type to be snooped.

~~displaying the bandwidth usage data to the system~~
~~administrator in real time.~~

9. (Amended) The method of claim 3 further comprising:
inserting a packet filtering parameter in the packet filter
object that specifies a packet type to be snooped.

5 ~~1 wherein the bandwidth usage data is measured as bits per user,~~
~~packets per user, bits per application, and/or packets per~~
~~application.~~

10. (Original) The method of claim 1 further comprising:
10 displaying the predicted bandwidth usage for the requested
action to the system administrator.

11. (Original) The method of claim 1 further comprising:
querying the bandwidth history by the application that
15 generated the requested action.

12. (Amended) The method of claim 1 ~~11~~ further comprising:
comparing actual bandwidth usage with predicted bandwidth
usage;

20 determining whether to adapt the requested action in
response to comparing actual bandwidth usage with predicted
bandwidth usage; and

modifying the requested action to reduce bandwidth
consumption during completion of the requested action with
25 respect to multiple instances of the application that generated
the requested action.

13. (Amended) The method of claim 1 ~~12~~ further comprising:
comparing actual bandwidth usage with predicted bandwidth
usage;

5 determining whether to adapt the requested action in
response to comparing actual bandwidth usage with predicted
bandwidth usage; and

modifying the requested action to reduce bandwidth
consumption during completion of the requested action ~~changing~~
~~the requested action in comparison to actual bandwidth usage with~~
10 respect to the application that generated the requested action.

14. (Amended) The method of claim 1 ~~12~~ further comprising:
comparing actual bandwidth usage with predicted bandwidth
usage;

15 determining whether to adapt the requested action in
response to comparing actual bandwidth usage with predicted
bandwidth usage; and

modifying the requested action to reduce bandwidth
consumption during completion of the requested action ~~changing~~
20 ~~the requested action in comparison to actual bandwidth usage with~~
respect to a user of the application that generated the requested
action.

15. (Amended) The method of claim 1 ~~12~~ further comprising:
comparing actual bandwidth usage with predicted bandwidth
usage;

determining whether to adapt the requested action in
5 response to comparing actual bandwidth usage with predicted
bandwidth usage; and

modifying the requested action to reduce bandwidth
consumption during completion of the requested action ~~changing~~
~~the requested action in comparison to actual bandwidth usage with~~
10 respect to an endpoint supporting the application that generated
the requested action.

16. (Amended) ~~The method of claim 12 further comprising:~~

A method for managing bandwidth within a distributed data processing system, the method comprising:

establishing a bandwidth history comprising bandwidth usage data associated with multiple entities within the distributed data processing system, wherein an entity within the distributed data processing system is selected from a group comprising a user, an application, or an endpoint;

in response to a requested action within the distributed data processing system, predicting bandwidth usage by the requested action;

comparing actual bandwidth usage with predicted bandwidth usage;

quervyng the bandwidth history by the application that generated the requested action

determining whether to adapt the requested action in response to comparing actual bandwidth usage with predicted bandwidth usage; and

modifying the requested action to reduce bandwidth consumption during completion of the requested action

changing the requested action in comparison to actual bandwidth usage with respect to multiple instances of the application that generated the requested action.

17. (Amended) An apparatus for managing bandwidth within a distributed data processing system, the apparatus comprising:

means for establishing a bandwidth history comprising bandwidth usage data associated with multiple entities within the

5 distributed data processing system, wherein an entity within the distributed data processing system is selected from a group comprising a user or, an application; and/or an endpoint; and

means for predicting bandwidth usage by the requested action in response to a requested action within the distributed data
10 processing system.

18. (Amended) The apparatus of claim 17 further comprising:

means for selecting, by an administrative user, a user to be monitored for bandwidth usage;

15 means for generating a packet filter object containing a packet filtering parameter that identifies the selected user;

means for dynamically deploying, in response to a request by the administrative user, packet snoopers in association with the packet filter object to a set of devices throughout the
20 distributed data processing system;

means for executing the dynamically deployed packet snoopers
objects at the set of devices to monitor bandwidth usage by the
selected user with respect to a given device or a given subnet;
and

25 means for receiving bandwidth usage data from the dynamically deployed packet snoopers.

~~means for receiving the requested action, wherein the requested action is a target resource within the distributed data processing system, and wherein completion of the requested action depends upon operations of a set of resources along a logical~~
30 ~~route through the distributed data processing system.~~

19. (Amended) The apparatus of claim 17 further comprising:
means for selecting, by an administrative user, an
application to be monitored for bandwidth usage;

5 means for generating a packet filter object containing a
packet filtering parameter that identifies the selected
application;

means for dynamically deploying, in response to a request by
the administrative user, packet snoopers in association
10 with the packet filter object to a set of devices throughout the
distributed data processing system;

means for executing the dynamically deployed packet snoopers
objects at the set of devices to monitor bandwidth usage by the
selected application with respect to a given device or a given
15 subnet; and

means for receiving bandwidth usage data from the
dynamically deployed packet snoopers objects.

~~18 wherein the requested action is received from a requesting~~
~~user or a requesting application.~~

20. (Amended) The apparatus of claim ~~19~~ 17 further comprising:
means for snooping network packets from multiple sources
within the distributed data processing system;

means for filtering the network packets against multiple
5 filter parameters, wherein a filter parameter comprises a user
identifier, an application identifier, ~~and/or~~ an endpoint
identifier; ~~and~~

means for reporting packet snoop data to be associated with
the requesting entity;

10 means for computing bandwidth usage data from the packet
snoop data; and

means for storing bandwidth usage data as the bandwidth
history.

15 21. (Amended) The apparatus of claim 18 ~~-20~~ further
comprising:

means for inserting a packet filtering parameter in the
packet filter object that specifies a packet type to be snooped.

20 ~~means for computing bandwidth usage data from the packet
snoop data.~~

22. (Amended) The apparatus of claim 18 ~~-21~~ further
comprising:

25 means for inserting a packet filtering parameter in the
packet filter object that specifies a packet size to be snooped.

~~means for storing bandwidth usage data as the bandwidth
history.~~

23. (Amended) The apparatus of claim 17 ~~19~~ further comprising:

means for deriving a set of logical routes from a network topology mapping, wherein each logical route is a series of endpoints that comprise an endpoint-to-endpoint route for completing the requested action;

means for dynamically deploying, in response to a request by the administrative user, packet snoopers in association with a packet filter object along the set of logical routes throughout the distributed data processing system, wherein the packet filter object specifies packet types or packet sizes to be snooped;

means for executing the dynamically deployed packet snoopers at devices along the set of logical routes to monitor bandwidth usage; and

means for receiving bandwidth usage data from the dynamically deployed packet snoopers.

24. (Amended) The apparatus of claim 19 ~~17~~ further comprising:

means for inserting a packet filtering parameter in the packet filter object that specifies a packet type to be snooped.

~~means for displaying the bandwidth usage data to the system administrator in real time.~~

25. (Amended) The apparatus of claim 19 further comprising:

means for inserting a packet filtering parameter in the packet filter object that specifies a packet size to be snooped.

~~wherein the bandwidth usage data is measured as bits per user, packets per user, bits per application, and/or packets per application.~~

26. (Original) The apparatus of claim 17 further comprising:
means for displaying the predicted bandwidth usage for the
requested action to the system administrator.

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27. (Original) The apparatus of claim 17 further comprising:
means for querying the bandwidth history by the application
that generated the requested action.

10 | 28. (Amended) The apparatus of claim 17 ~~-27~~ further
comprising:

means for comparing actual bandwidth usage with predicted
bandwidth usage;

15 | means for determining whether to adapt the requested action
in response to comparing actual bandwidth usage with predicted
bandwidth usage; and

20 | means for modifying the requested action to reduce bandwidth
consumption during completion of the requested action with
respect to multiple instances of the application that generated
the requested action.

29. (Amended) The apparatus of claim 17 ~~-28~~ further comprising:

means for comparing actual bandwidth usage with predicted bandwidth usage;

5 means for determining whether to adapt the requested action in response to comparing actual bandwidth usage with predicted bandwidth usage; and

means for modifying the requested action to reduce bandwidth consumption during completion of the requested action ~~means for changing the requested action in comparison to actual bandwidth usage~~ with respect to the application that generated the requested action.

30. (Amended) The apparatus of claim 17 ~~-28~~ further comprising:

15 means for comparing actual bandwidth usage with predicted bandwidth usage;

means for determining whether to adapt the requested action in response to comparing actual bandwidth usage with predicted bandwidth usage; and

20 means for modifying the requested action to reduce bandwidth consumption during completion of the requested action ~~means for changing the requested action in comparison to actual bandwidth usage~~ with respect to a user of the application that generated
25 the requested action.

31. (Amended) The apparatus of claim 17 ~~-28~~ further comprising:

means for comparing actual bandwidth usage with predicted bandwidth usage;

5 means for determining whether to adapt the requested action in response to comparing actual bandwidth usage with predicted bandwidth usage; and

10 means for modifying the requested action to reduce bandwidth consumption during completion of the requested action ~~means for changing the requested action in comparison to actual bandwidth usage~~ with respect to an endpoint supporting the application that generated the requested action.

32. (Amended) ~~The apparatus of claim 28 further comprising:~~

An apparatus for managing bandwidth within a distributed data processing system, the apparatus comprising:

means for establishing a bandwidth history comprising
5 bandwidth usage data associated with multiple entities within the distributed data processing system, wherein an entity within the distributed data processing system is selected from a group comprising a user, an application, or an endpoint;

means for predicting bandwidth usage by the requested action
10 in response to a requested action within the distributed data processing system;

means for querying the bandwidth history by the application that generated the requested action;

means for comparing actual bandwidth usage with predicted
15 bandwidth usage;

means for determining whether to adapt the requested action in response to comparing actual bandwidth usage with predicted bandwidth usage; and

means for modifying the requested action to reduce bandwidth
20 consumption during completion of the requested action; and

means for changing the requested action in comparison to actual bandwidth usage with respect to multiple instances of the application that generated the requested action.

33. (Amended) A computer program product in a computer-readable medium for use in a distributed data processing system for managing bandwidth, the computer program product comprising:

5 instructions for establishing a bandwidth history comprising bandwidth usage data associated with multiple entities within the distributed data processing system, wherein an entity within the distributed data processing system is ~~selected from a group comprising a user or~~ an application; and
10 ~~and/or an endpoint; and~~

instructions for predicting bandwidth usage by the requested action in response to a requested action within the distributed data processing system.

15 34. (Amended) The computer program product of claim 33 further comprising:

instructions for selecting, by an administrative user, a user to be monitored for bandwidth usage;

20 instructions for generating a packet filter object containing a packet filtering parameter that identifies the selected user;

25 instructions for dynamically deploying, in response to a request by the administrative user, packet snoopers in association with the packet filter object to a set of devices throughout the distributed data processing system;

instructions for executing the dynamically deployed packet snoopers at the set of devices to monitor bandwidth usage by the selected user with respect to a given device or a given subnet; and

30 instructions for receiving bandwidth usage data from the dynamically deployed packet snoopers.

~~instructions for receiving the requested action, wherein the requested action is a target resource within the distributed data processing system, and wherein completion of the requested action depends upon operations of a set of resources along a logical route through the distributed data processing system.~~

35. (Amended) The computer program product of claim 33 further comprising:

instructions for selecting, by an administrative user, an application to be monitored for bandwidth usage;

instructions for generating a packet filter object containing a packet filtering parameter that identifies the selected application;

instructions for dynamically deploying, in response to a request by the administrative user, packet snoopers in association with the packet filter object to a set of devices throughout the distributed data processing system;

instructions for executing the dynamically deployed packet snoopers at the set of devices to monitor bandwidth usage by the selected application with respect to a given device or a given subnet; and

instructions for receiving bandwidth usage data from the dynamically deployed packet snoopers.

~~wherein the requested action is received from a requesting user or a requesting application.~~

36. (Amended) The computer program product of claim 33 ~~35~~ further comprising:

instructions for snooping network packets from multiple sources within the distributed data processing system;

5 instructions for filtering the network packets against multiple filter parameters, wherein a filter parameter comprises a user identifier, an application identifier, ~~and/or~~ an endpoint identifier; ~~and~~

10 instructions for reporting packet snoop data to be associated with the requesting entity

instructions for computing bandwidth usage data from the packet snoop data; and

instructions for storing bandwidth usage data as the bandwidth history.

15 37. (Amended) The computer program product of claim 34 ~~36~~ further comprising:

instructions for inserting a packet filtering parameter in the packet filter object that specifies a packet type to be
20 snooped.

~~instructions for computing bandwidth usage data from the packet snoop data.~~

25 38. (Amended) The computer program product of claim 34 ~~37~~ further comprising:

instructions for inserting a packet filtering parameter in the packet filter object that specifies a packet size to be
snooped.

30 ~~instructions for storing bandwidth usage data as the bandwidth history.~~

39. (Amended) The computer program product of claim 33 ~~35~~ further comprising:

instructions for deriving a set of logical routes from a network topology mapping, wherein each logical route is a series of endpoints that comprise an endpoint-to-endpoint route for completing the requested action;

instructions for dynamically deploying, in response to a request by the administrative user, packet snoopers in association with a packet filter object along the set of logical routes throughout the distributed data processing system, wherein the packet filter object specifies packet types or packet sizes to be snooped;

instructions for executing the dynamically deployed packet snoopers at devices along the set of logical routes to monitor bandwidth usage; and

instructions for receiving bandwidth usage data from the dynamically deployed packet snoopers.

40. (Amended) The computer program product of claim 35 ~~33~~ further comprising:

instructions for inserting a packet filtering parameter in the packet filter object that specifies a packet type to be snooped.

~~instructions for displaying the bandwidth usage data to the system administrator in real time.~~

41. (Amended) The computer program product of claim 35 further comprising:

instructions for inserting a packet filtering parameter in the packet filter object that specifies a packet size to be snooped.

~~33 wherein the bandwidth usage data is measured as bits per user, packets per user, bits per application, and/or packets per application.~~

5 42. (Original) The computer program product of claim 33 further comprising:

instructions for displaying the predicted bandwidth usage for the requested action to the system administrator.

10 43. (Original) The computer program product of claim 33 further comprising:

instructions for querying the bandwidth history by the application that generated the requested action.

15 44. (Amended) The computer program product of claim 33 ~~43~~ further comprising:

instructions for comparing actual bandwidth usage with predicted bandwidth usage;

20 instructions for determining whether to adapt the requested action in response to comparing actual bandwidth usage with predicted bandwidth usage; and

25 instructions for modifying the requested action to reduce bandwidth consumption during completion of the requested action, with respect to multiple instances of the application that generated the requested action.

45. (Amended) The computer program product of claim 33 -44 further comprising:

instructions for comparing actual bandwidth usage with predicted bandwidth usage;

5 instructions for determining whether to adapt the requested action in response to comparing actual bandwidth usage with predicted bandwidth usage; and

instructions for modifying the requested action to reduce bandwidth consumption during completion of the requested action -
10 ~~instructions for changing the requested action in comparison to actual bandwidth usage with respect to the application that generated the requested action.~~

46. (Amended) The computer program product of claim 33 -44 further comprising:

instructions for comparing actual bandwidth usage with predicted bandwidth usage;

instructions for determining whether to adapt the requested action in response to comparing actual bandwidth usage with
20 predicted bandwidth usage; and

instructions for modifying the requested action to reduce bandwidth consumption during completion of the requested action -
~~instructions for changing the requested action in comparison to actual bandwidth usage with respect to a user of the application~~
25 that generated the requested action.

47. (Amended) The computer program product of claim 33 ~~44~~
further comprising:

instructions for comparing actual bandwidth usage with
predicted bandwidth usage;

5 instructions for determining whether to adapt the requested
action in response to comparing actual bandwidth usage with
predicted bandwidth usage; and

instructions for modifying the requested action to reduce
bandwidth consumption during completion of the requested action

10 ~~instructions for changing the requested action in comparison
to actual bandwidth usage with respect to an endpoint supporting
the application that generated the requested action.~~

48. (Amended) ~~The computer program product of claim 44 further comprising:~~

A computer program product in a computer-readable medium for use in a distributed data processing system for managing bandwidth, the computer program product comprising:

instructions for establishing a bandwidth history comprising bandwidth usage data associated with multiple entities within the distributed data processing system, wherein an entity within the distributed data processing system is selected from a group comprising a user, an application, or an endpoint;

instructions for predicting bandwidth usage by the requested action in response to a requested action within the distributed data processing system

instructions for querying the bandwidth history by the application that generated the requested action;

instructions for comparing actual bandwidth usage with predicted bandwidth usage;

instructions for determining whether to adapt the requested action in response to comparing actual bandwidth usage with predicted bandwidth usage; and

instructions for modifying the requested action to reduce bandwidth consumption during completion of the requested action; and

instructions for changing the requested action in comparison to actual bandwidth usage with respect to multiple instances of the application that generated the requested action.